

**SECRET**

25 September 1963

**MEMORANDUM FOR:** Assistant Director, OSA-DD/S & T  
**ATTENTION:** Chief, Contracts Division, OSA-DD/S & T  
**SUBJECT:** Authorization to Proceed under Contract [REDACTED]  
**REFERENCE:** "Authorization to Expend Funds From Other Components Allotments," dated 3 May 1963, Subject: Request for Covert Contract.

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1. In accordance with paragraph 2.B. of Exhibit "A" to Contract [REDACTED] it is requested that the contractor be authorized by TWX to proceed on the following projects with the understanding that the first step under each project will be the preparation of design objectives acceptable to the technical representatives of the Contracting Officer:

- a. Reversal Processing Study, PAR 206
- b. Definitive Study of Contact Printing, PAR 207
- c. Study of Color Acquisition Systems, PAR 212
- d. Study of Color Duplication Systems, PAR 213

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2. The reference established the overall obligation of funds against which these projects are to be charged.

[REDACTED]  
Assistant For Administration  
National Photographic Interpretation Center

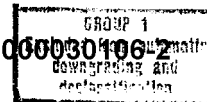
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- 1 - Chrono

NPIC/AS/LB [REDACTED] 17 September 1963

**SECRET**



*W3m*  
*27 Aug 63*



21 August 1963

*JWC*  
*27 Aug*

Dear John:

My notes on our meeting of 15 August list the following action items.

1. In conformance with your request, we formally submit the following phased breakdown of the ROM costs for the six (6) hardware PAR's.

Phase I	Preliminary Design and Specification
Phase II	Design Engineering
Phase III	Fabrication and Checkout



2. PAR #208

You will give us detailed directions as to just what areas in the field of image enhancement are being covered adequately. We will then confine our efforts to other areas, thereby avoiding duplication.

3. PAR #211

We were requested to furnish among others two (2) specific outputs:

- (a) A specific recommendation of the best material and process for a "mensuration print".
- (b) A classification of edge characteristics for typical material-printing-processing combinations.

4. Three (3) minor PAR's were submitted and verbally approved.

PAR #201 - Travel and Liaison [redacted]

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This PAR covers the necessary changes for travel and liaison in connection with contract [redacted] not assignable to specific projects.

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No estimate but will inform you when the costs reach

[redacted]

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PAR #209 - Phosphor Viewer

A field and trial model of the Viewer incorporating a U. V. flooded phosphor plate which will provide various degrees of contrast will be completed and sent to [redacted] for trial and comment. (Original work was on PAR #21.)

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ROM Estimate

[redacted]

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PAR #210 - Glass Laminated Projection Slides

It is felt that improved projection slides for briefing use can be made by laminating the film to glass, thereby eliminating certain current problems. We will also look at the projector for field modifications to increase slide cooling.

ROM Estimate

[redacted]

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5. The enclosed data book P-37 gives information on CRT recording. In addition to those listed, we have a new film SO-235 which has a speed of 800 to P11 phosphor relative to the 5374 standard at 100. Having seen the paper record, I do not believe that you will need this speed. If I can do anything more please call.

It is my understanding that we may expect official action on the submitted program by 3 September. We are all set to go whenever you give us the good word.

*[Handwritten signature]*

*[Handwritten signature]*  
S. H. D.

*Answer within 40 days to  
two weeks  
in the 7th with breadboards  
for hardware*  
August 14, 1963

Dear John:

25X1 In accordance with paragraph 2B of Exhibit A to  
25X1 contract [ ] the items listed below and described in  
Attachment A are considered to be "Significant Projects" and  
can be expected to exceed [ ] per item. They are submitted  
for your consideration and approval.

25X1 For reference purposes they are listed by Project  
Authorization Request (PAR) number in the 200 Series which has  
been reserved for [ ] Projects.

The costs estimated below are associated either with  
the testing and analysis in the study programs, or with the  
design and fabrication of breadboards to determine feasibility  
and operating parameters of the hardware projects.

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Approved For Release 2005/11/21 : CIA-RDP78B04770A001000030106-2

Approved For Release 2005/11/21 : CIA-RDP78B04770A001000030106-2

Attachment A

Technical Description of Projects

PAR 202 Briefing Print Enlarger

Currently, a major use of the 10-20-40X Enlarger is making prints for briefing boards and reports. For this specific application, a different set of compromises in the optical design should permit a more versatile instrument whose performance is better matched to the requirements.

While the design would lean heavily on our experience with the 10-20-40X we would incorporate 20" x 24" print capability, easier negative and print stock handling, easier cleaning, more steps in the magnification range, color print capability etc. wherever possible.

PAR 203 Quick and Dirty Print System

A means for producing photographic prints for quick reference and manual marking by Photo interpreters is needed. This device should be dry for use in interpretation areas, should be useful in normal room lighting and should be relatively rapid.

It is planned to investigate commercially available continuous tone dry systems. Recent developments in this field seem to indicate suitable quality and speed. If this is true the most suitable commercial unit will be purchased for trial. Should a material and process show promise we would propose a combination PI viewer and exposure station allowing the PI to make quick prints without cutting film or removing rolls from his work station. It may also be possible to develop a small portable exposure station which could be carried to the PI's work area for print making.

PAR 204, 205, High Quality Printers (Contact and 1X) for selected areas

The present practice of cutting the desired area from the roll prints for detail photo interpretation leads to many problems. There is therefore a need to provide the photo labs with a capability to make maximum quality film "chip" prints from selected small areas of the roll negatives for "detail PT" work.

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Attachment A

The prints may be 4X enlargement or they may be contact prints, depending upon the nature of the given target and the scale of the photography. Design concepts and specifications are being developed for both a 4X enlarger and a contact printer to meet this need. These developments will draw heavily upon the 10-20-40X Enlarger and the Niagara Printer experience. A new lens design is available on paper, providing about 4X, which should approach the performance of the present 20X lens.

PAR 204 covers the Contact Printer.

PAR 205 covers the 4X Printer.

(1) PAR 206 Reversal Processing of High Resolution Positive Films  
for DW's

In the production of DW films it is desirable to preserve in as far as possible all the information in the O Negative. We propose to investigate the reversal processing of positive films having higher inherent resolution than 8430. Tests of various reversal techniques as applied to the several suitable emulsions will be run and the results analysed. In this way we hope to establish control of density and gamma and to minimize grain while attempting to preserve informational content of the original negative.

(2) PAR 207 Definitive Study of Contact Printing

In high quality contact printing for PI use there are at least four major characteristics to be considered.

1. Inherent information transfer capabilities (film)
2. Characteristics of the inter-film contact.
3. Physical distortion.
4. Reproduction of blemishes such as dirt, scratches, Newton rings etc.

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Attachment A

We propose to evaluate both theoretically and practically the various mechanical systems for printing with regard to these four characteristics. Both continuous and step-and-repeat modes will be considered.

PAR 208 Image Enhancement of Small Scale Photography

Current electronic system of image enhancement do not have sufficient resolution to be effective on small scale photography. We propose therefore to investigate other means of increasing the availability of information contained in the O Negative films. Such methods include in part unsharp masking, contrast control, non-linear intensification, color filtering etc. as applied to the various print films now in use and to any others which may possess special characteristics suitable for exploitation in this respect.

PAR 211 Micro D Study of the Effects of Processing on Line Edges

In the mensuration process there always exists a question as to just where the "true" edge lies.

We propose to investigate techniques for locating this "true" edge. From Micro-D studies we hope to determine the effects of changes in printing and processing techniques on image edges with normal print films and with materials not normally used for PI prints.

We will also investigate the possibility of producing a special "Mensuration Print" based on the results of the above tests.

(3) PAR 212 Color Systems Review

A survey will be made of possible complete color systems from taking equipment to the ultimate output. Included will be processing, duplication, reproduction, and the making of both transmission and reflection hard copy at 1 to 1 and by enlargement.

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Attachment A

Among the factors to be considered will be:

- A Lens characteristics
- B Scale
- C Filtering
- D Taking Film
- E Processing requirements
- F Reproducibility
- G Contact transparencies and/or prints
- H Enlargements for Transmission or reflection
- I Stereo combinations
- F Special color applications, materials, ie. (infra red).

Where gaps exist in the available data laboratory tests will be run to obtain the necessary information.

The various systems will be grouped by categories and evaluated for applicability to aerial surveillance and photo-interpretation.

As new color systems, materials or equipment are developed, they will be incorporated into this study and evaluated.

(4) PAR 213 Color Duplication Systems

A survey will be made of existing equipment to determine what hardware is available and suitable for the printing, processing, reproduction and exploitation of color materials. This survey will include a study of the compatibility of the equipment with various color systems which are currently recognized and the application of this equipment to new systems under development.

Where there appear to be gaps we will prepare design recommendations for review by the customer. If approved, a PAR will be issued for the design and fabrication of the necessary equipment. Such PAR's may, or may not, become part of

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Attachment A

As information from PAR 212 and other sources becomes available other gaps in the color hardware line will undoubtedly be revealed. These will be handled in a similar manner.

Specifically this PAR covers the review of existing hardware for color, testing of existing items where required for evaluation, and the preparation of design recommendations for equipment to fill any gaps in the line of hardware required for the full exploitation of color.

PAR 214 Roller Transport Reversal Processor (12 inch)

A requirement exists for a versatile photographic processor capable of processing both sheets and continuous webs to either standard negative or reversal images. Changes from one process to the other should be quickly accomplished with a minimum of operator effort.

It is proposed to redesign existing self threading equipment to incorporate the reversal processing cycle and the necessary valves, switches and controls to provide for easy return to standard processing.

It should be recognized that as with other RT processors some of the thinner base materials may require a pilot tab at the leading edge in order to be self threading.

PAR 215 Roller Transport Processor (24 inch)

Briefing charts and other large prints are currently handled in essentially tray equipment, which is cumbersome and inefficient.

We propose to adapt the self-threading principle to a wide machine capable of handling either sheets or webs up to 24 inches wide in either film or treated paper base materials. It should be recognized that as with other RT processors some of the thinner base materials may require a pilot tab at the leading edge in order to be self threading.

Modular design will be attempted in order to make conversion to a reversal processing cycle possible by the addition of the necessary extra tank units.

30 July 63  
from ECG  
at NPIC

Proposed Projects

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A. Studies

1. Color Acquisition Systems
2. Color Duplication Systems for PI - Briefing - Publication
3. Micro D study of effect of processing on edges (help in measuring)
4. Reversal of SO-105 or some intermediate film for DN's
5. Definitive study of Printers, i.e., Drum, Arch, Flat Bed, Vac Frame, etc, as to reproduction and distortion
6. Image enhancement, by any method

B. Hardware

1. Lab Equipment for Color (see 1 & 2 above)
2. RT-12 Reversal Versamat
3. PI Area Q & D Printer for communication
4. High Qual Printer (Contact or 4X) to give 4 X 4 on a 4 X 5 chip
5. Processor for Item 4
6. Rework of 10-20-40

20 x 24 Prints

Simpler Op & Maint.

Clean Room Op

Variable Mag (Autofocus ?)

7. Arch type S & R Printer
8. Phosphor Viewer
9. Glass plate laminator for Telepro Slides

C. Liaison

1. Acquisition Equipment Mfg. and Planning

1. QUERIES

SEQUENTIAL PRINTING - B MATL?

Specific proposals  
on these items  
will be  
forthcoming.  
JWC

R & D Items of Possible Interest

7 June 63

1. 9 x 9 Enlarger with photo masking
  - (a) Lens Design
  
2. Reducing Camera and Enlarger for Archival Material
  - (a) Lens Design
  - (b) Reversal Processing of SO-105
  
3. Redesign of 10-20-40X Enlarger
  - (a) Simplified Film Handling
  - (b) Adapt for Clean Room
  - (c) Stock Roll Holder
  - (d) Color Lens
  - (e) Easier Operation and Maintenance
  
4. Step and Repeat Enlarging Printer
  - (a) 16-35-70mm to 5-inch roll
  - (b) Lens Design
  
5. Step and Repeat Printer Improvement
  - (a) Automation
  - (b) Clean Room Operation
  - (c) Contact

6. Viewer - Printer - Processor

- (a) Q & D for Paper Memo
- (b) Reversal Versamat for Film Printer

7. Micro Densitometry

- (a) Mod 6
- (b) Automated Data Reduction

8. Scanning Densitometer

9. Titling and Data Blocks

- (a) Photo Titler
- (b) Digital to Alpha - Numeric with add-on printing
- (c) Magnetic

10. Viewer

- (a) Dual Roll Stereo Microscope (Lens Design)
- (b) U. V. Contrast Control

11. Image Enhancement, Etc.

- (a) Masking Techniques
- (b) Automated Density Cut Series
- (c) Low Gamma Negative Process

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RDP144

NEGOTIATED CONTRACT

Contract No. 

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Contract For: See Schedule

Estimated Amount: 

Mail Vouchers To: Contracting Officer

Performance Period:

20 May 1963 - 30 June 1964

This contract is entered into, by and between the United States of America, hereinafter called the Government, represented by the Contracting Officer executing this contract, and the above-named Contractor which is a Corporation, incorporated in the State of New Jersey, hereinafter called the Contractor.

The parties hereto agree that the Contractor shall furnish the facilities and deliver all supplies and perform all the services set forth in the attached schedule issued hereunder, for the consideration stated herein.

The rights and obligations of the parties to this contract shall be subject to and governed by the Schedule, Exhibit A and General Provisions, which together with this signature page and the accompanying certificate comprise this Contract  In the event of any inconsistency between the Schedule and the General Provisions, the Schedule shall control. 25X1

IN WITNESS WHEREOF, the parties hereto have executed this contract as of \_\_\_\_\_, 1963.

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BY 

TITLE \_\_\_\_\_

THE UNITED STATES OF AMERICA 25X1

BY 

Contracting Officer

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The Contractor shall provide the Government with development support in accordance with EXHIBIT "A" to Contract No. [ ] Said EXHIBIT "A" is on file with the Contractor and the Contracting Officer and is incorporated into and made a part of this Schedule by reference.

#### PART II - PERIOD OF PERFORMANCE

The period of performance of work under this contract shall commence on 20 May 1963 and shall expire on 30 June 1964; however, said period of performance may be extended by mutual agreement between the parties hereto.

#### PART IV - PAYMENTS

In accordance with the provisions of Clause 4 of the General Provisions of this contract entitled "Allowable Cost, Fixed-Fee, and Payment", the Government shall pay the Contractor, as full compensation for the performance of this contract, the fixed-fee as specified in PART III, above, and the allowable costs incurred by the Contractor in the performance of this contract and accepted by the Contracting Officer as chargeable in accordance with "Contract Cost Principles, Section XV, Part 2, Armed Services Procurement Regulations." It being understood and agreed, without limiting the generality of the foregoing, that the following shall be considered as allowable items of cost hereunder when incurred or paid by the Contractor and when necessary and required and used for the performance of work hereunder.

a. Direct Engineering Labor - It is recognized that the standard accounting practice of the Contractor is to cost and charge Direct Engineering Labor including Engineers, Draftsmen and Technicians at average rates in lieu of the actual costs thereof, all such labor being grouped into several classes.

of employees used, the contract will be based at the rate for the group in which his particular classification falls. It is understood that these average rates may vary slightly from time to time, usually not oftener than every six months. It is recognized further that the standard accounting practice of the Contractor is to cost and charge directly to the contract Engineering Shop Labor and all other direct labor at actual cost. It is understood and agreed that this method of accounting has been approved by the cognizant Cost Inspection Office and that charges under this contract will conform thereto.

b. **Indirect Costs** - There shall be included as allowable indirect costs such Overhead and General and Administrative Expense Rates as may be established by the Contractor and the Government Contracting Officer in accordance with the principles of Clause 29 of the General Provisions hereof. Pending establishment of final overhead and G&A rates for any period, the Contractor shall be reimbursed a provisional billing rate acceptable to the Contracting Officer or his representative. Such billing rates may be revised from time to time with the approval of the Contracting Officer and are subject to appropriate adjustment when the final rates for that period are established.

c. Such other necessary costs as may from time to time be necessary to incur in support of the Government's needs hereunder, as approved by the Contracting Officer.

#### **PART V - PAYMENT OF FIXED-FEE**

The Fixed-Fee shall be paid in monthly installments based on allowable costs incurred by the Contractor and approved by the Contracting Officer computed at the same ratio that the total fixed-fee stated herein is to the total estimated cost stated herein; subject, however to the withholding provisions of Paragraph (c) of General Provision 4, **ALLOWABLE COST, FIXED-FEE and PAYMENT**. The fixed-fee payable hereunder shall not exceed the amount therefor stipulated in the contract as it may be amended from time to time.

#### **PART VI - ANTICIPATORY COST**

All costs which have been incurred by the Contractor on or after 20 May 1945, in anticipation of and prior to the signing of this contract, and which if incurred after the signing of this contract would have been considered as items of allowable costs hereunder, will be accepted by the Contracting Officer as costs under this contract.

of the operations and Contract Division from other plants or divisions of the Contractor (which shall not be deemed to include subsidiaries or affiliates) the following principles shall apply: (1) to the extent that such purchases relate to items normally produced and sold by the Contractor, such purchases may be made at net wholesale or, where there is no net wholesale, negotiated prices normally charged by the Contractor pursuant to its catalog or otherwise for such items, (2) to the extent that such purchases relate to parts, components or property intended to be incorporated into the articles to be produced, repaired, or modified, special tools, supplies, miscellaneous equipment, facilities or other property, or to design, engineering, research or development services or any other services to be performed by the Contractor's employees not regularly assigned to the project, such purchases may be made at negotiator prices estimated but not warranted by the Contractor not to exceed plant cost, such purchases from other plants or divisions being treated for purposes of audit no differently than purchases under similar terms and conditions from third parties.

#### **PART VIII - LETTER CONTRACT SUPERSEDED**

This is the Definitive Contract contemplated by Letter Contract, Message 7592 dated 20 May 1963. This Definitive Contract supersedes said letter contract. Services performed and payments made under the said Letter Contract, shall be deemed to be services performed and payments made under this Definitive Contract. The date of the Letter Contract shall govern for the determination of the priority status of this Definitive Contract. In the event of conflict between this Definitive Contract and said Letter Contract, this Definitive Contract shall prevail.

#### **PART IX - WAIVER OF REQUIREMENTS OF GENERAL PROVISIONS**

Notwithstanding the requirements of any of the General Provisions of this contract to the contrary, whenever the Contractor, in performance of the work under this contract, shall find that the requirements of any of the clauses of the General Provisions are in conflict with security instructions issued to the Contractor by the Contracting Officer or by his duly authorized representative for security matters, the Contractor shall call the attention of the Contracting Officer to such conflict and the Contracting Officer or his duly authorized representative for security matters shall (i) modify or rescind such security requirement or (ii) the Contracting Officer shall issue to the Contractor a waiver of compliance with the requirements of the General Provisions conflicting

with such security requirements. Any waiver of compliance with the General Provisions of this contract issued by the Contracting Officer shall be in writing, except that the approval by the Contracting Officer of any subcontract issued hereunder by the Contractor shall be deemed to constitute approval of waiver of any clauses of the General Provisions in conflict with the stipulations of such subcontract.

**PART X - SPECIAL SECURITY RESTRICTIONS**

The Contractor shall not reveal (i) the specific nature or any details of the work being performed hereunder or (ii) any information whatsoever with respect to the department of the Government sponsoring this contract and the work thereunder except as the Contractor is directed or permitted to reveal such information by the Contracting Officer or by his duly authorized representative for security matters, and notwithstanding any clause or section of this contract to the contrary, the Contractor shall not interpret any clause or section of this contract as requiring or permitting divulgence of such information to any person, public or private, or to any officer or department of the Government without the express consent of the Contracting Officer or his duly authorized representative for security matters.

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*File RFD*  
*Rec'd 31 Jan 64*

**EXHIBIT "A"**

to

Contract No. \_\_\_\_\_ *dated 20 May 63*

**1. STATEMENT OF WORK**

The Contractor shall provide the Government with development support which will lead to improved methods, techniques and equipment utilized in exploiting information obtained from various programs utilizing photographic sensors. In the performance of this work the Contractor shall investigate, through studies, tests and the fabrication and use of engineering breadboard equipment, new methods or devices which will further the state of the art in photographic techniques and practices as it pertains to improved extraction of information from photographic materials.

**2. AUTHORIZATION TO PROCEED**

Contractor shall undertake development efforts under this contract only pursuant to specific authorization of the Technical Representative of the Contracting Officer. Such authorization shall be given in the form of work orders of a nature and to be issued as described below.

A. Authorization for general development efforts in an entire technical area. Authorization to ~~being~~ work may be given orally by the Technical Representative of the Contracting Officer and will be promptly confirmed in writing. REG 19

B. Authorization to proceed with a specific project within an authorized technical area when the cost of the project is estimated to be \_\_\_\_\_ or more (Significant Project) 25X1 may be given orally by the Technical Representative of the Contracting Officer and will be promptly confirmed in writing.

C. Authorization for projects within an authorized technical area but estimated to cost less than \_\_\_\_\_ may be given orally by the Technical Representative of the Contracting Officer and need not be confirmed in writing. 25X1

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### 3. REPORTS

Progress on all work underway and plans for the future will be reported briefly on a monthly basis by the Contractor for the benefit of the Technical Representative of the Contracting Officer. In addition, a written quarterly review summarizing results obtained will be submitted by the Contractor. This shall include information concerning money expended for each significant Project to date and re-estimate of money required to complete the project. The Contractor will be expected to provide the Technical Representative of the Contracting Officer written reports concerning development efforts when deemed advisable by the Government as well as such verbal elaborations as the Technical Representative or Contracting Officer may desire. Text and format of all reports shall support the need of the Technical Representative of the Contracting Officer to approximately determine the technical and Financial progress of each development project assigned.

### 4. COST

Costs shall be accumulated to each Significant Project if applicable, otherwise, to technical area in which the work falls.

### 5. TESTING AND EVALUATION

Testing and evaluation of equipment under this development effort may be performed in the Government laboratory operated by the Contractor in his plant  All labor and burden costs for such testing and evaluation will be charged to and funded under this contract.

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### 6. PATENTS

The Contractor will assign to the Government, in accordance with the Patent Rights Clause of this contract, the right to manufacture any equipment resulting from this contract. In this connection the Contractor shall release to the Government all technical data, drawings and prototype equipment developed under this contract. In this connection it is recognized that equipment developed under this contract normally be of prototype or breadboard nature and, as such, may not be suitable for reproduction. The drawings referred to above are those utilized for making such prototype or breadboards.

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## **7. TECHNICAL AREAS OF INVESTIGATION**

The Contractor may, within the scope of this Work Statement, pursue such developmental activities in technical areas indicated below as authorized. Other areas of similar interest may also be indicated for developmental activity.

- A. Viewing equipment**
- B. Projection techniques**
- C. Color enlarging**
- D. Data handling**
- E. Image enhancement**
- F. Clean room techniques**
- G. Light sources**
- H. Mensuration techniques**

## **8. LEVEL OF EFFORT**

The level of effort authorized in the performance of this contract through 30 June 1964 and for each 12 months' period thereafter shall not exceed twenty-five (25) man-years time per period. Said time shall include that of scientists, engineers and direct support personnel. This level of effort may be increased by mutual agreement.

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